UNIVERSITI SAINS MALAYSIA

CPC357: IoT Architecture & Smart Applications

Project

Group Members:

1. Name: _____ Matric No. : _____

2. Name: _____ Matric No. : _____

Students are required to develop a practical IoT system addressing real-world urban challenges while contributing to at least one **UN Sustainable Development Goal (SDG)**. This project integrates theoretical knowledge with hands-on implementation, culminating in a working prototype and video presentation.

Project Objectives

1. Design and implement a functional IoT system
2. Address specific urban challenges aligned with SDGs
3. Demonstrate practical understanding of IoT architecture
4. Apply cloud computing and data analytics concepts

Hardware and Software Integration Requirements

1. **Hardware** - Students can utilize any of the following:
    - Raspberry Pi
    - Maker Feather S3
    - Any suitable microcontroller with appropriate sensors
2. **Software/Cloud Platform** - Students can choose:
    - V-One IoT Platform
    - AWS (Amazon Web Services)
    - GCP (Google Cloud Platform)

Important Note: The core requirement is successful integration between your chosen hardware and cloud platform, demonstrating a complete IoT system with data collection, processing, and visualization capabilities.

Deliverables

1. Working IoT prototype showing hardware-software integration
2. Technical documentation (system architecture, setup guide)
3. Source code and documentation.
    - Upload source code to GitHub or GitLab repository.
    - Include repository link in your documentation.
    - Upload the document in elearn@USM.
4. Video presentation (5 minutes maximum) demonstrating:
    - System overview
    - Live demonstration

- SDG impact
- Technical implementation

Video Submission Requirements

- Upload your video to YouTube (can be unlisted)
- Submit the video link through this form: https://docs.google.com/forms/d/e/1FAIpQLSc6jFxRYiBQgtins-ScdrSHlw8aNUKARc_UM8rUJKlIbpIL7g/viewform
- Ensure video is accessible when submitting

⚠ **IMPORTANT**: Your IoT system implementation must be your own original work.

- Do not copy existing projects from the internet.
- Do not duplicate another student's work.
- While you can use online resources for learning, your implementation must be unique.
- Any form of plagiarism will result in serious academic consequences.

Assignment Due Date: 17 January 2025, 5pm (MY time)

GRADING RUBRICS:

Criteria	Weight	Excellent (70-100%)	Sufficient (52-69%)	Fair (36-51%)	Poor (0-35%)
IoT system design concepts, plan and implementation	40%	Student presents a well-developed concept, plan, and implementation with key aspects clearly highlighted.	Student provides sufficient information on the concept, plan, and implementation with key aspects highlighted.	Student presents basic information on the concept, plan, and implementation with some key aspects highlighted.	Student presents inadequate information on the concept, plan, and implementation with few, or no key aspects highlighted.
Innovation and Impact	25%	Highly innovative solution with clear, significant impact on chosen SDG.	Original approach with moderate innovation and impact on chosen SDG.	Standard implementation with basic connection to SDG.	Minimal creativity with weak or unclear SDG connection.
Documentation	25%	Comprehensive, clear explanations and well-organised documentation.	Clear diagrams with adequate explanations.	Basic diagrams and information provided.	Incomplete or unclear information.
Presentation	10%	Clear, professional and engaging demonstration.	Clear, effective presentation.	Basic demonstration with acceptable quality.	Unclear demonstration with poor quality.

All projects MUST be submitted before/on the given date. Late submissions without prior approval will not be accepted.

Plagiarism/pirating and copying are serious academic offence. Students that are found to plagiarize/or copying will get an F for the assignment/report or for the whole coursework grade.

Thank you